

IFW



Attorney Docket No.: 101328-180

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Karen K. Gleason et al.

Application No.: 10/624,959 – 6293

Group Art Unit: Not Yet Assigned

Filed: July 22, 2003

Examiner: Not Yet Assigned

For: Porous Material Formation By Chemical Vapor  
Deposition Onto Colloidal Crystal Templates

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**TRANSMITTAL LETTER**

Dear Sir:

I enclose herewith for filing in the above-identified application the following:

1. Information Disclosure Statement;
2. PTO/SB/08 Form cited (46) references thereon;
3. Copies of each Foreign Patent and Non-Patent Reference cited; and
4. Return receipt postcard.

The Commissioner is authorized to charge any overpayments or underpayments if necessary to our Deposit Account No. 141449, Reference No. 101328-180, Customer No. 021125. A duplicate of this sheet is enclosed.

I hereby certify that this correspondence is deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

June 23, 2004

Date

Deborah A. Miller, Reg. No 53,328

Respectfully submitted,

Deborah A. Miller, Reg. No. 53,328  
Agent For Applicants  
NUTTER MCCLENNEN & FISH, LLP  
World Trade Center West  
155 Seaport Boulevard  
Boston, Massachusetts 02210-2604  
Tel. (617) 439-2863  
Fax (617) 310-9863



Attorney Docket No.: 101328-180

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Karen K. Gleason et al.

Application No.: 10/624,959 - 6293

Group Art Unit: Not Yet Assigned

Filed: July 22, 2003

Examiner: Not Yet Assigned

For: Porous Material Formation By Chemical Vapor  
Deposition Onto Colloidal Crystal Templates

Certificate of First Class Mailing

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date set forth below.

June 23, 2004  
Date of Signature and of Mail Deposit

By:

Deborah A. Miller  
Deborah A. Miller, Reg. No. 53,328  
Agent for Applicants

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Dear Sirs:

Pursuant to 37 C.F.R. §1.56, §1.97 and §1.98, Applicant herewith makes of record the enclosed documents listed on the attached copy of PTO/SB/08A. In accordance with §1.97(b), this Information Disclosure Statement is being filed prior to the mailing date of a first Office Action on the merits.

Applicants have not submitted copies of each cited U.S. patent and each U.S. patent application as required by 37 C.F.R. 1.98 (a)(2)(i) since the U.S. Patent and Trademark Office has waived this requirement for all U.S. patent applications filed after June 30, 2003. If a copy of any cited reference is needed, please call the undersigned at the telephone number indicated below.

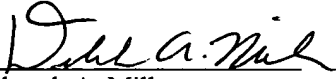
This statement is not to be interpreted as a representation that the cited publications are material, that an exhaustive search has been conducted, or that no other relevant information exists. Nor shall the citation of any publication herein be construed *per se* as a representation that such publications are prior art. Moreover, the Applicants understand the Examiner will

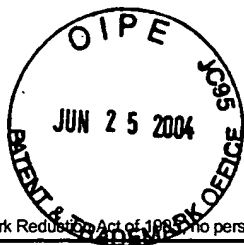
make an independent evaluation of the cited publications.

No fee is believed to be due in connection with the filing of this paper. However, if any fee is due, the Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 141449.

Dated: June 23, 2004

Respectfully submitted,

By   
Deborah A. Miller  
Registration No.: 53,328  
NUTTER, MCCLENNEN & FISH, LLP  
World Trade Center West  
155 Seaport Boulevard  
Boston, Massachusetts 02210-2604  
Telephone (617) 439-2863  
Facsimile (617) 310-9863  
Agent for Applicants



PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

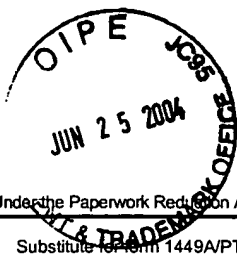
U. S. Patent and Trademark Office: U. S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>				<b>Complete if Known</b>	
				<b>Application Number</b>	10/624,959 (Conf #6293)
				<b>Filing Date</b>	July 22, 2003
				<b>First Named Inventor</b>	Karen K. Gleason
				<b>Art Unit</b>	Not Yet Assigned
				<b>Examiner Name</b>	Not Yet Assigned
<b>Sheet</b>	1	of	3	<b>Attorney Docket Number</b>	101328-180

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	AA	4,599,243	07/08/1986	Sachdev et al.	
	AB	5,521,126	05/28/1996	Okamura et al.	
	AC	6,068,884	05/30/2000	Rose et al.	
	AD	6,090,724	07/18/2000	Shelton et al.	
	AE	6,107,357	08/22/2000	Hawker et al.	
	AF	6,214,746 B1	04/10/2001	Leung et al.	
	AG	6,258,735 B1	07/10/2001	Xia et al.	
	AH	6,313,045 B1	11/06/2001	Zhong et al.	
	AI	6,319,858 B1	11/20/2001	Lee et al.	
	AJ	6,358,863 B1	03/19/2002	Desu et al.	
	AK	6,391,932 B1	05/21/2002	Gore et al.	
	AL	6,420,441 B1	07/16/2002	Allen et al.	
	AM	6,455,443 B1	09/24/2002	Eckert et al.	
	AN	6,495,479 B1	12/17/2002	Wu et al.	
	AO	6,541,367 B1	04/01/2003	Mandal	
	AP	6,541,865 B2	04/01/2003	Hawker et al.	
	AQ	2001/0004479 A1	06/21/2001	Cheung et al.	
	AR	2003/0006477 A1	01/09/2003	Gallahger et al.	
	AS	2003/0001239 A1	01/02/2003	Gallahger et al.	
	AT	2002/0137359 A1	09/26/2002	Grill et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country-Number				
	BA	EP 1 321 976 A2	06/25/2003	Canon Sales Co., Inc.		
	BB	EP 1 148 539 A2	10/24/2001	Applied Materials, Inc.		
	BC	EP 1 195 451 A1	04/10/2002	Applied Materials, Inc.		
	BD	WO 03/005429 A1	01/16/2003	Postech Foundation		



PTO/SB/08A (10-01)

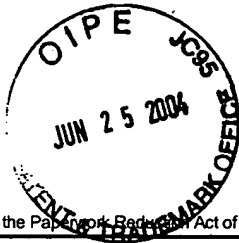
Approved for use through 10/31/2002.OMB 0651-0031

U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitution for Form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)			<b>Complete if Known</b>		
			<b>Application Number</b>	10/624,959 (Conf #6293)	
			<b>Filing Date</b>	July 22, 2003	
			<b>First Named Inventor</b>	Karen K. Gleason	
			<b>Art Unit</b>	Not Yet Assigned	
			<b>Examiner Name</b>	Not Yet Assigned	
<b>Sheet</b>	2	of	3	<b>Attorney Docket Number</b>	101328-180

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>	
	CA	Baklanov, M.R. et al. "Comparative Study of Porous SOG Films With Different Non-Destructive Instrumentation," IEEE pp. 189-191, (2001);		
	CB	Baklanov, M.R. "Determination of Pore Size Distribution In Thin Films By Ellipsometric Porosimetry" J. Vac. Sci. Technol. B., Vol. 18, No. 3, pp. 1385-13981, (2000);		
	CC	Baklanov, M.R., Mogilnikov, K.P., "Non-Destructive Characterisation of Porous Low-K Dielectric Films," Microelectronic Engineering, Vol. 64, pp. 335-349, (2002);		
	CD	Chen, J.Y. et al. "Microstructure and Mechanical Properties of Surfactant Templated Nanoporous Silica Thin Films" Effect of Methylsilylation," Journal of The Electrochemical Society, Vol. 150, No. 6, pp. F123-F127 (2003);		
	CE	Grill, A. and Neumayer, D. A. "Structure of Low Dielectric Constant To Extreme Low Dielectric Constant SiCOH Films: Fourier Transform Infrared Spectroscopy Characterization," Journal of Applied Physics, Vol. 94, No. 10, pp. 6697-6707 (2003);		
	CF	Grill, A. and Patel, V. "Ultralow-k Dielectrics Prepared By Plasma-Enhanced Chemical Vapor Deposition," Applied Physics Letters, Vol. 79, No. 6, pp. 803-805 (2001);		
	CG	Grill, A. "Plasma Enhanced Chemical Vapor Deposited SiCOH Dielectrics: From Low-k To Extreme Low-k Interconnect Materials," Journal of Applied Physics, Vol. 93, No. 3, pp. 1785-1790 (2003);		
	CH	Grill, A et al. "Characteristics of Low-k and Ultralow-k PECVD Deposited SiCOH Films," Mat. Res. Soc. Symp. Proc., Vol. 716, pp. B12.3.1-B12.3.6 (2002);		
	CI	Grill, A. et al. "Porosity In Plasma Enhanced Chemical Vapor Deposited SiCOH Dielectrics: A Comparative Study," Journal of Applied Physics", Vol. 94, No. 5, pp. 3427-3435, (2003);		
	CJ	Grill, A. and Patel, V. "Low Dielectric Constant Films Prepared By Plasma-Enhanced Chemical Vapor Deposition From Tetramethylsilane," Journal of Applied Physics, Vol. 85, No. 6 pp. 3314-3318 (1999);		
	CK	Hedrick, J. L. et al. "Templating Nanoporosity In Thin-Film Dielectric Insulators," Adv. Mater. Vol. 10, No. 13 pp. 1049-1053 (1998);		
	CL	Park, S.H. and Xia, Y. "Macroporous Membranes With Highly Ordered And Three-Dimensionally Interconnected Spherical Pores," Advanced Materials, Vol. 10, No. 13, pp. 1045-1053 (1998);		
	CM	Peters, L. "Low-K Dielectrics: Will Spin-On or CVD Prevail?," Semiconductor international, pp. 108-124, (2000);		
	CN	Peters, L. "Removing Barriers To Low-K Dielectric Adoption," Semiconductor International 53-62, (2002);		
	CO	Sanchez, M.I. et al. "Nanofoam Porosity By Infrared Spectroscopy," Journal of Polymer Science: Part B: Polymer Physics, Vol. 33, pp. 253-257 (1995);		
	CP	Sanchez, M.I. et al. "Nanofoam Porosity Measured By Infrared Spectroscopy And Refractive Index," Mat. Res. Soc. Symp. Proc., Vol. 431, pp. 475-480, (1996);		
	CQ	Vrtis, R.N. et al. "Plasma Enhanced Chemical Vapor Deposition of Porous Organosilicate Glass ILD Films With k ≤2.4," Mat. Res. Soc. Symp. Proc., Vol. 766, pp. E7.4.1-E7.4.6, (2003);		
	CR	Wu, Q. and Geason, K.K. "Plasma-Enhanced Chemical Vapor Deposition of Low-k Dielectric Films Using Methylsilane, Dimethylsilane, and Trimethylsilane Precursors," J. Vac. Sci. Technol., Vol. A 21, No. 2, pp. 388-393 (2003);		
	CS	Yang, S. et al. "Nanoporous Ultralow Dielectric Constant Organosilicates Templated By Triblock Copolymers," Chem. Mater., Vol. 14, pp. 369-374 (2002);		



PTO/SB/08A (10-01)

Approved for use through 10/31/2002.OMB 0651-0031

U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Complete if Known</b>	
				<b>Application Number</b>	10/624,959 (Conf #6293)
				<b>Filing Date</b>	July 22, 2003
				<b>First Named Inventor</b>	Karen K. Gleason
				<b>Art Unit</b>	Not Yet Assigned
				<b>Examiner Name</b>	Not Yet Assigned
<b>Sheet</b>	3	of	3	<b>Attorney Docket Number</b>	101328-180

	CT	Yim, J-H. et al. "The Preparation and Characterization of Small Mesopores In Siloxane-Based Materials That Use Cyclodextrins as Templates," Adv. Funct. Mater., Vol. 13, No. 5, pp. 382-386 (2003);	
	CU	Ye, Y-H. et al. "Large-Scale Ordered Macroporous SiO <sub>2</sub> Thin Films by a Template-Directed Method," Applied Physics Letters, Vol. 81, No. 4, pp. 616-618, (2002);	
	CV	Zhang, P. et al. "Theory of Metastable Group-IV Alloys Formed From CVD Precursors," Physical Review B, Vol. 64, pp. 235201-1- 235201-10 (2001).	
Examiner Signature			Date Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

1293235.1